**City & County of San Francisco**

**High Precision Network Densification (HPND)**

**Coordinate List**

**Published Sept. 15, 2015**

**Revised Sept. 16, 2016, Feb. 09, 2017, May 05, 2017, June 06, 2018**

**In 2013 the City & County of San Francisco established a high precision GNSS based three-dimensional (geometric) survey network known as the CCSF High Precision Network (CCSF-HPN) consisting of 20 stations described in Record of Survey #8080 (expanded to 28 stations in 2018) and a vertical network known as the CCSF 2013 High Precision Leveling Network which references the CCSF Vertical Datum of 2013 (CCSF-VD13) based on NAVD88 as recovered in the City & County of San Francisco based on 35 NGS Benchmarks (see Leveling Report on file).**

**The HPN references a low distortion projection of plane coordinates but unlike the California State Plane Coordinate System it is centered on San Francisco. The system is referred to as the “City & County of San Francisco Coordinate System of 2013” (CCSF-CS13). CCSF-CS13 is based on a Transverse Mercator Projection with Geodetic North at the central meridian passing through the approximate center of the City. CCSF-CS13, a low distortion projection, is designed so that the combined scale factors are generally less than 1:100,000 in the City.**

**The City & County of San Francisco initiated a program in July 2014 to establish Secondary Control points to densify the 2013 HPN known as HPND points. The positions of the HPND are derived from three or more independent occupations based GNSS RTN solutions that agreed within 0.03 feet horizontally and 0.05 feet vertically. CCSF-VD13 Benchmarks are upgraded horizontally to HPND status when convenient and suitable for GNSS observations. The benchmark is assigned a three-digit HPND ID in addition to its BM ID, retains its CCSF-VD13 published height and is listed herein with its CCSF-CS13 Coordinates. The HPND reserved point number range is 201-1999. As of the date of this publication 285 HPND points have been established notwithstanding monuments lost due to construction. Please report destroyed monuments to the County Surveyor’s Office.**

**The horizontal accuracy of the HPND points at the 95% level of confidence is estimated at 0.03 feet radially and the vertical accuracy is estimated at 0.05 feet when the heights are derived from geoidal modeling. The geoid model used for the adjustments is known as the San Francisco Geoid Height Model of 2013 (SFGH13). Height codes are listed below to indicate the source and estimated accuracy. Units are US survey feet.**

**Revised Orthometric Heights: 09/06/16 at 216, 366, 369, 370, 371, 378, 379; 05/31/17 at 440**

**Geometric Datum: NAD83 (2011) Epoch 2010.00**

**Vertical Datum: CCSF 2013 NAVD88 Vertical Datum (CCSF-VD13)**

**Projection: San Francisco Coordinate System of 2013 (CCSF-CS13)**

**Height Codes**

**(L) Based on CCSF 2013 High Precision Leveling Network**

**(G) GNSS + SFGH13 Geoid Model (Accuracy Estimated at 0.05')**

**(T) Trig-Traverse (Accuracy Estimated at 0.02')**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Point** | **Latitude(dms)** | **Longitude(dms)** | **EH(ft)** | **North(ft)** | **East(ft)** | **OrthoHt(ft)** | **Ht. Codes** | **Comment** |
|  |  |  |  |  |  |  |  |  |
| **201** | **37-48-20.19942** | **122-28-00.81060** | **-94.97** | **98991.15** | **152599.53** | **12.005** | **L** | **= AE5209** |
| **202** | **37-44-00.33672** | **122-29-49.03219** | **-29.73** | **72708.34** | **143900.82** | **77.956** | **L** | **= AB7677** |
| **203** | **37-44-55.49852** | **122-23-56.49708** | **-90.68** | **78288.68** | **172218.65** | **16.2** | **G** | **= ARMY** |
| **204** | **37-46-53.85101** | **122-25-26.52735** | **0.1** | **90257.36** | **164984.25** | **106.983** | **L** | **Destroyed** |
| **205** | **37-46-52.34757** | **122-25-37.67584** | **-1.5** | **90105.04** | **164089.25** | **105.411** | **L** |  |
| **206** | **37-46-55.22347** | **122-25-38.26605** | **16.6** | **90395.94** | **164041.80** | **123.432** | **L** |  |
| **207** | **37-44-16.49445** | **122-23-45.50565** | **-61.7** | **74343.83** | **173103.74** | **45.257** | **L** |  |
| **208** | **37-44-14.74831** | **122-23-42.43902** | **-50.8** | **74167.35** | **173350.19** | **56.198** | **L** |  |
| **209** | **37-44-12.69351** | **122-23-38.73777** | **-45.6** | **73959.68** | **173647.64** | **61.391** | **L** |  |
| **210** | **37-44-27.40867** | **122-23-34.76485** | **-92.5** | **75448.34** | **173965.88** | **14.395** | **L** |  |
| **211** | **37-44-23.97657** | **122-23-28.62550** | **-86.7** | **75101.48** | **174459.25** | **20.189** | **L** |  |
| **212** | **37-44-34.28714** | **122-23-18.48236** | **-94.8** | **76144.94** | **175273.34** | **12.123** | **L** |  |
| **213** | **37-44-38.50951** | **122-23-25.81732** | **-95.1** | **76571.66** | **174683.89** | **11.836** | **L** |  |
| **214** | **37-44-41.88012** | **122-23-31.87882** | **-95.7** | **76912.30** | **174196.80** | **11.197** | **L** |  |
| **215** | **37-44-57.76580** | **122-24-18.08324** | **-80.4** | **78517.13** | **170484.78** | **26.5** | **G** |  |
| **216** | **37-44-57.85235** | **122-24-03.62303** | **-75.0** | **78526.47** | **171646.18** | **31.900** | **L** |  |
| **217** | **37-44-58.58396** | **122-23-49.16809** | **-65.0** | **78601.11** | **172807.13** | **41.913** | **L** |  |
| **218** | **37-44-59.72399** | **122-23-43.17614** | **-77.8** | **78716.70** | **173288.32** | **29.066** | **L** | **Destroyed** |
| **219** | **37-44-59.39031** | **122-23-36.22355** | **-93.5** | **78683.28** | **173846.75** | **13.394** | **L** |  |
| **220** | **37-44-50.17966** | **122-23-41.80090** | **-95.8** | **77751.33** | **173399.34** | **11.162** | **L** |  |
| **221** | **37-44-49.02632** | **122-23-55.88783** | **-94.3** | **77634.03** | **172267.94** | **12.59** | **L** |  |
| **222** | **37-44-46.00430** | **122-24-09.62104** | **-91.0** | **77327.76** | **171165.04** | **16.0** | **G** |  |
| **223** | **37-46-25.13941** | **122-27-49.05224** | **129.9** | **87352.34** | **153541.53** | **237.032** | **L** |  |
| **224** | **37-46-25.64267** | **122-27-45.19340** | **130.4** | **87403.21** | **153851.36** | **237.509** | **L** |  |
| **225** | **37-46-36.32853** | **122-26-48.50697** | **147.0** | **88483.88** | **158402.75** | **253.975** | **L** |  |
| **226** | **37-46-37.02373** | **122-26-41.86704** | **119.8** | **88554.23** | **158935.86** | **226.744** | **L** |  |
| **227** | **37-46-44.43610** | **122-26-13.15852** | **56.2** | **89304.23** | **161240.70** | **163.147** | **L** |  |
| **228** | **37-46-48.50803** | **122-25-36.87786** | **-11.9** | **89716.68** | **164153.41** | **94.942** | **L** |  |
| **229** | **37-46-45.71630** | **122-25-05.33223** | **-42.4** | **89435.03** | **166686.13** | **64.415** | **L** |  |
| **230** | **37-44-49.46422** | **122-24-11.96165** | **-87.5** | **77677.65** | **170976.87** | **19.449** | **L** |  |
| **231** | **37-44-50.54115** | **122-24-18.42294** | **11.5** | **77786.33** | **170457.84** | **118.4** | **G** |  |
| **232** | **37-44-57.99511** | **122-24-09.69515** | **-81.1** | **78540.66** | **171158.48** | **25.817** | **L** |  |
| **233** | **37-44-58.19933** | **122-23-49.43306** | **-60.9** | **78562.19** | **172785.87** | **46.047** | **L** |  |
| **234** | **37-45-34.22027** | **122-29-11.84505** | **138.4** | **82203.53** | **146891.96** | **245.762** | **L** |  |
| **235** | **37-45-34.03216** | **122-29-15.68745** | **136.4** | **82184.63** | **146583.38** | **243.855** | **L** |  |
| **236** | **37-48-27.90019** | **122-24-26.41083** | **-94.8** | **99772.48** | **169806.23** | **11.957** | **L** |  |
| **237** | **37-48-24.01341** | **122-24-25.62119** | **-93.9** | **99379.35** | **169869.78** | **12.823** | **L** |  |
| **238** | **37-46-29.67262** | **122-25-09.15929** | **-52.2** | **87812.07** | **166379.41** | **54.763** | **L** |  |
| **239** | **37-46-25.23565** | **122-25-07.75489** | **-62.7** | **87363.29** | **166492.32** | **44.256** | **L** |  |
| **240** | **37-46-13.78998** | **122-24-45.11289** | **-87.0** | **86206.20** | **168310.74** | **19.9** | **L** |  |
| **241** | **37-46-18.45588** | **122-24-40.31370** | **-81.5** | **86678.33** | **168695.89** | **25.414** | **L** |  |
| **242** | **37-44-40.76080** | **122-24-15.53011** | **-84.4** | **76797.14** | **170690.68** | **22.525** | **L** |  |
| **243** | **37-44-37.26255** | **122-24-17.19557** | **-84.4** | **76443.22** | **170557.07** | **22.58** | **L** |  |
| **244** | **37-44-31.42057** | **122-24-21.47916** | **-84.3** | **75852.12** | **170213.28** | **22.662** | **L** |  |
| **245** | **37-44-22.84082** | **122-24-25.12326** | **-84.5** | **74984.13** | **169920.96** | **22.492** | **L** |  |
| **246** | **37-44-20.31653** | **122-24-25.32757** | **-84.7** | **74728.78** | **169904.67** | **22.25** | **L** |  |
| **247** | **37-46-10.32631** | **122-25-35.68837** | **13.0** | **85854.52** | **164249.88** | **119.907** | **L** |  |
| **248** | **37-46-08.54842** | **122-25-36.47288** | **13.9** | **85674.67** | **164186.93** | **120.848** | **L** |  |
| **249** | **37-45-58.12000** | **122-25-51.82260** | **21.6** | **84619.53** | **162954.61** | **128.536** | **L** |  |
| **250** | **37-45-56.47897** | **122-25-52.10456** | **23.2** | **84453.53** | **162932.01** | **130.136** | **L** |  |
| **251** | **37-45-52.14925** | **122-25-58.20156** | **30.9** | **84015.47** | **162442.50** | **137.859** | **L** |  |
| **252** | **37-45-50.74984** | **122-26-00.41775** | **33.2** | **83873.89** | **162264.56** | **140.155** | **L** | **Destroyed** |
| **253** | **37-43-31.28424** | **122-25-19.98631** | **276.6** | **69767.41** | **165515.46** | **383.7** | **G** | **Destroyed** |
| **254** | **37-43-30.37611** | **122-25-23.58742** | **312.4** | **69675.47** | **165226.16** | **419.439** | **L** |  |
| **255** | **37-43-02.73905** | **122-26-13.82889** | **157.3** | **66879.08** | **161189.95** | **264.518** | **L** |  |
| **256** | **37-43-08.08009** | **122-26-09.00619** | **197.5** | **67419.39** | **161577.38** | **304.656** | **L** |  |
| **257** | **37-43-36.25953** | **122-25-32.31611** | **219.4** | **70270.40** | **164524.71** | **326.486** | **L** |  |
| **258** | **37-45-44.34197** | **122-27-54.11865** | **192.6** | **83225.64** | **153134.07** | **299.712** | **L** |  |
| **259** | **37-45-51.01883** | **122-27-54.62274** | **171.1** | **83901.03** | **153093.70** | **278.236** | **L** |  |
| **260** | **37-45-36.99300** | **122-30-35.57134** | **-76.5** | **82487.47** | **140168.35** | **31.162** | **L** |  |
| **261** | **37-45-30.27961** | **122-30-34.24805** | **-77.6** | **81808.32** | **140274.19** | **30.091** | **L** |  |
| **262** | **37-48-23.69204** | **122-25-19.67541** | **-76.4** | **99345.20** | **165531.63** | **30.362** | **L** |  |
| **263** | **37-48-26.78527** | **122-25-19.49506** | **-95.1** | **99658.10** | **165546.01** | **11.667** | **L** | **= 990721** |
| **264** | **37-48-14.12204** | **122-25-12.40581** | **54.3** | **98377.35** | **166115.37** | **161.025** | **L** |  |
| **265** | **37-47-28.89794** | **122-23-21.45901** | **-96.7** | **93807.11** | **175022.78** | **10.048** | **L** |  |
| **266** | **37-47-33.52578** | **122-23-27.01939** | **-97.6** | **94274.94** | **174576.14** | **9.112** | **L** |  |
| **267** | **37-47-40.36019** | **122-23-34.79930** | **-96.4** | **94965.87** | **173951.22** | **10.348** | **L** |  |
| **268** | **37-47-13.03686** | **122-23-42.37102** | **-61.6** | **92201.67** | **173345.07** | **45.202** | **L** |  |
| **269** | **37-47-05.69516** | **122-26-35.20419** | **69.8** | **91454.46** | **159470.59** | **176.655** | **L** |  |
| **270** | **37-46-59.05951** | **122-26-33.76737** | **96.6** | **90783.25** | **159585.99** | **203.535** | **L** | **=11352** |
| **271** | **37-44-26.34687** | **122-25-26.82656** | **46.7** | **75336.95** | **164964.35** | **153.624** | **L** | **Destroyed** |
| **272** | **37-44-23.90291** | **122-25-26.72272** | **62.6** | **75089.74** | **164972.76** | **169.574** | **L** | **Destroyed** |
| **273** | **37-45-56.84000** | **122-24-36.30900** | **-34.7** | **84491.96** | **169018.38** | **72.1** | **G** |  |
| **274** | **37-45-57.38421** | **122-24-32.37737** | **-35.5** | **84547.15** | **169334.06** | **71.4** | **G** |  |
| **275** | **37-46-25.54462** | **122-23-22.56967** | **-95.4** | **87398.68** | **174937.77** | **11.415** | **L** | **Revised OrthHt** |
| **276** | **37-46-02.84253** | **122-23-20.40540** | **-92.6** | **85102.42** | **175113.04** | **14.24** | **L** |  |
| **277** | **37-47-58.40716** | **122-24-33.61948** | **-12.5** | **96788.91** | **169229.00** | **94.2** | **G** | **Destroyed** |
| **278** | **37-47-52.59925** | **122-24-25.23729** | **-33.1** | **96201.72** | **169902.05** | **73.71** | **L** |  |
| **279** | **37-48-06.65277** | **122-23-58.75685** | **-95.5** | **97624.34** | **172026.74** | **11.2** | **G** |  |
| **280** | **37-47-55.91589** | **122-23-49.09607** | **-96.5** | **96538.70** | **172802.74** | **10.2** | **G** |  |
| **281** | **37-47-07.58949** | **122-23-15.74375** | **-94.8** | **91652.00** | **175483.00** | **12.0** | **G** |  |
| **282** | **37-46-53.24725** | **122-23-16.94184** | **-94.9** | **90201.17** | **175387.78** | **11.9** | **G** |  |
| **283** | **37-45-01.65321** | **122-23-09.35020** | **-92.6** | **78913.57** | **176004.99** | **14.3** | **G** |  |
| **284** | **37-45-01.17975** | **122-23-00.23693** | **-91.6** | **78866.19** | **176736.97** | **15.3** | **G** |  |
| **285** | **37-44-05.62645** | **122-22-30.57702** | **-94.9** | **73248.65** | **179123.64** | **12.0** | **G** |  |
| **286** | **37-44-35.07157** | **122-30-25.38015** | **-83.5** | **76223.46** | **140982.95** | **24.30** | **L** |  |
| **287** | **37-46-09.70243** | **122-25-57.00298** | **39.7** | **85791.04** | **162538.41** | **146.67** | **L** |  |
| **288** | **37-46-10.29121** | **122-26-01.81095** | **64.0** | **85850.53** | **162152.34** | **171.0** | **G** |  |
| **289** | **37-46-31.62554** | **122-26-05.91177** | **150.0** | **88008.50** | **161822.72** | **256.9** | **G** |  |
| **290** | **37-44-31.25630** | **122-30-24.87005** | **-83.6** | **75837.52** | **141023.68** | **24.26** | **L** |  |
| **291** | **37-44-39.56010** | **122-29-30.47983** | **78.9** | **76675.16** | **145392.99** | **186.5** | **G** |  |
| **292** | **37-44-39.63787** | **122-29-26.66623** | **98.0** | **76682.89** | **145699.31** | **205.5** | **G** |  |
| **293** | **37-44-36.17235** | **122-28-05.66502** | **335.2** | **76330.30** | **152205.51** | **442.5** | **G** |  |
| **294** | **37-45-49.24180** | **122-28-37.89291** | **116.2** | **83722.07** | **149618.98** | **223.48** | **L** |  |
| **295** | **37-45-48.73316** | **122-28-34.10680** | **122.6** | **83670.53** | **149923.00** | **229.83** | **T** |  |
| **296** | **37-43-57.85090** | **122-28-30.50266** | **114.7** | **72454.47** | **150209.41** | **222.14** | **T** |  |
| **297** | **37-43-50.95928** | **122-28-30.05289** | **108.2** | **71757.36** | **150245.36** | **215.62** | **L** |  |
| **298** | **37-42-59.67374** | **122-28-20.05051** | **122.4** | **66569.53** | **151047.69** | **229.96** | **T** |  |
| **299** | **37-42-58.51288** | **122-28-17.61530** | **130.0** | **66452.06** | **151243.34** | **237.56** | **T** |  |
| **300** | **37-43-31.73273** | **122-25-20.28399** | **276.4** | **69812.77** | **165491.53** | **383.51** | **T** |  |
| **301** | **37-44-22.98784** | **122-24-03.95441** | **-90.2** | **74999.84** | **171621.41** | **16.7** | **G** |  |
| **302** | **37-44-16.49181** | **122-23-52.23690** | **-65.9** | **74343.26** | **172563.02** | **41.1** | **G** |  |
| **303** | **37-44-11.51036** | **122-23-43.20720** | **-32.8** | **73839.79** | **173288.67** | **74.1** | **G** | **Destroyed** |
| **304** | **37-44-05.34165** | **122-23-32.62597** | **-12.5** | **73216.32** | **174139.06** | **94.5** | **G** | **Destroyed** |
| **305** | **37-44-24.61233** | **122-23-54.71827** | **-89.2** | **75164.55** | **172363.24** | **17.8** | **G** |  |
| **306** | **37-44-21.56921** | **122-23-49.26574** | **-89.1** | **74856.98** | **172801.40** | **17.9** | **G** | **Destroyed** |
| **307** | **37-44-14.08316** | **122-23-36.58938** | **-62.3** | **74100.35** | **173820.13** | **44.686** | **L** |  |
| **308** | **37-44-09.53546** | **122-23-28.10178** | **-52.3** | **73640.76** | **174502.24** | **54.6** | **G** |  |
| **309** | **37-44-31.16242** | **122-23-54.24033** | **-89.5** | **75827.13** | **172401.27** | **17.4** | **G** |  |
| **310** | **37-44-26.53162** | **122-23-46.09996** | **-90.3** | **75359.08** | **173055.42** | **16.7** | **G** |  |
| **311** | **37-44-21.50909** | **122-23-34.75930** | **-86.4** | **74851.58** | **173966.69** | **20.560** | **L** |  |
| **312** | **37-44-15.43832** | **122-23-26.02895** | **-67.2** | **74237.95** | **174668.38** | **39.8** | **G** |  |
| **313** | **37-44-36.68004** | **122-23-50.48217** | **-91.5** | **76385.42** | **172702.83** | **15.4** | **G** |  |
| **314** | **37-44-30.49482** | **122-23-40.99024** | **-92.2** | **75760.21** | **173465.63** | **14.700** | **L** |  |
| **315** | **37-44-24.48884** | **122-23-29.58753** | **-87.6** | **75153.25** | **174381.94** | **19.335** | **L** |  |
| **316** | **37-44-18.20392** | **122-23-19.46575** | **-64.7** | **74518.04** | **175195.42** | **42.2** | **G** |  |
| **317** | **37-44-41.42259** | **122-23-48.02056** | **-92.4** | **76865.25** | **172900.28** | **14.6** | **G** |  |
| **318** | **37-44-35.54149** | **122-23-36.61532** | **-93.3** | **76270.90** | **173816.74** | **13.574** | **L** |  |
| **319** | **37-44-29.77295** | **122-23-26.59842** | **-89.6** | **75687.90** | **174621.71** | **17.332** | **L** |  |
| **320** | **37-44-23.05475** | **122-23-15.79837** | **-82.2** | **75008.90** | **175489.69** | **24.7** | **G** |  |
| **321** | **37-44-47.68729** | **122-23-42.01281** | **-98.2** | **77499.21** | **173382.47** | **8.758** | **L** |  |
| **322** | **37-44-40.55807** | **122-23-32.48663** | **-95.1** | **76778.54** | **174148.06** | **11.814** | **L** |  |
| **323** | **37-44-33.83840** | **122-23-22.76327** | **-86.6** | **76099.32** | **174929.51** | **20.347** | **L** |  |
| **324** | **37-44-27.33659** | **122-23-11.37487** | **-90.0** | **75442.26** | **175844.73** | **16.9** | **G** |  |
| **325** | **37-44-50.32659** | **122-23-38.62789** | **-94.5** | **77766.35** | **173654.19** | **12.458** | **L** | **Destroyed** |
| **326** | **37-44-46.10579** | **122-23-26.45752** | **-98.4** | **77340.01** | **174631.98** | **8.5** | **G** | **Destroyed** |
| **327** | **37-44-39.96198** | **122-23-15.80298** | **-96.6** | **76719.10** | **175488.18** | **10.3** | **G** |  |
| **328** | **37-44-33.28720** | **122-23-06.67208** | **-87.7** | **76044.43** | **176222.07** | **19.2** | **G** |  |
| **329** | **37-44-54.90520** | **122-23-31.67502** | **-96.9** | **78229.82** | **174212.36** | **10.0** | **G** |  |
| **330** | **37-44-45.48798** | **122-23-18.99845** | **-98.4** | **77277.90** | **175231.14** | **8.6** | **G** | **Destroyed** |
| **331** | **37-44-45.23691** | **122-23-12.90029** | **-96.0** | **77252.83** | **175720.97** | **10.9** | **G** |  |
| **332** | **37-44-38.22706** | **122-22-59.64440** | **-90.9** | **76544.51** | **176786.21** | **16.0** | **G** |  |
| **333** | **37-44-52.66366** | **122-23-18.80627** | **-93.5** | **78003.74** | **175246.10** | **13.4** | **G** |  |
| **334** | **37-44-47.79985** | **122-23-10.38928** | **-94.8** | **77512.21** | **175922.49** | **12.1** | **G** |  |
| **335** | **37-44-41.91020** | **122-22-57.41338** | **-93.7** | **76917.19** | **176965.15** | **13.2** | **G** |  |
| **336** | **37-44-19.76430** | **122-23-52.69489** | **-83.2** | **74674.26** | **172526.05** | **23.739** | **L** | **Destroyed** |
| **337** | **37-44-08.27062** | **122-23-32.48838** | **-43.5** | **73512.60** | **174149.93** | **63.5** | **G** |  |
| **338** | **37-44-43.40521** | **122-23-08.78038** | **-94.6** | **77067.77** | **176052.02** | **12.4** | **G** |  |
| **339** | **37-44-52.02906** | **122-23-24.76157** | **-93.9** | **77939.24** | **174767.82** | **13.0** | **G** |  |
| **340** | **37-44-33.05979** | **122-23-27.91517** | **-86.6** | **76020.30** | **174515.73** | **20.351** | **L** |  |
| **341** | **37-44-21.79752** | **122-28-35.10803** | **172.8** | **74876.82** | **149840.12** | **280.20** | **T** |  |
| **342** | **37-44-28.44638** | **122-28-35.56447** | **186.4** | **75549.37** | **149803.64** | **293.74** | **T** |  |
| **343** | **37-44-43.52414** | **122-26-24.16185** | **465.3** | **77073.58** | **160358.59** | **572.43** | **L** |  |
| **344** | **37-44-40.38058** | **122-26-22.36762** | **435.6** | **76755.62** | **160502.74** | **542.68** | **L** |  |
| **345** | **37-47-51.36050** | **122-25-55.66829** | **-35.6** | **96074.06** | **162643.62** | **71.3** | **G** |  |
| **346** | **37-47-50.59544** | **122-26-01.62926** | **-29.3** | **95996.58** | **162165.17** | **77.6** | **G** |  |
| **347** | **37-48-19.15070** | **122-25-55.38307** | **-83.5** | **98885.13** | **162665.97** | **23.34** | **L** |  |
| **348** | **37-48-08.94210** | **122-25-53.08752** | **-60.1** | **97852.53** | **162850.41** | **46.7** | **G** |  |
| **349** | **37-48-25.70765** | **122-26-20.73973** | **-95.8** | **99548.07** | **160630.84** | **11.037** | **L** | **=HT0713/990713** |
| **350** | **37-46-17.90861** | **122-27-14.01908** | **149.0** | **86620.67** | **156354.36** | **256.03** | **L** |  |
| **351** | **37-46-15.40446** | **122-27-19.32831** | **142.2** | **86367.39** | **155928.05** | **249.31** | **L** |  |
| **352** | **37-46-24.56430** | **122-26-27.76105** | **105.0** | **87294.01** | **160068.52** | **211.98** | **L** |  |
| **353** | **37-45-08.08999** | **122-28-38.37599** | **282.5** | **79559.47** | **149578.97** | **389.81** | **L** |  |
| **354** | **37-45-08.38971** | **122-28-46.12060** | **281.2** | **79589.98** | **148956.98** | **388.551** | **L** | **=11077** |
| **355** | **37-46-24.00705** | **122-25-44.12825** | **90.2** | **87238.20** | **163571.88** | **197.1** | **G** |  |
| **356** | **37-46-23.27066** | **122-25-50.04874** | **84.8** | **87163.61** | **163096.53** | **191.7** | **G** |  |
| **357** | **37-46-22.04366** | **122-26-26.37292** | **107.0** | **87039.05** | **160180.00** | **214.0** | **G** |  |
| **358** | **37-46-09.02582** | **122-27-13.67809** | **159.3** | **85722.15** | **156381.70** | **266.31** | **L** |  |
| **359** | **37-48-04.39201** | **122-26-28.68774** | **-89.7** | **97391.86** | **159993.17** | **17.18** | **L** |  |
| **360** | **37-48-02.85106** | **122-26-40.66028** | **-88.6** | **97235.91** | **159032.25** | **18.3** | **G** |  |
| **361** | **37-47-04.72556** | **122-24-04.30829** | **-75.4** | **91359.99** | **171584.45** | **31.4** | **G** |  |
| **362** | **37-46-48.01320** | **122-24-48.61996** | **-58.9** | **89667.86** | **168027.79** | **47.89** | **L** |  |
| **363** | **37-46-53.52153** | **122-27-23.51023** | **107.2** | **90223.05** | **155592.53** | **214.22** | **L** | **=Mon#18135** |
| **364** | **37-47-00.06495** | **122-24-08.69734** | **-75.4** | **90888.37** | **171232.34** | **31.4** | **G** |  |
| **365** | **37-46-48.06990** | **122-27-21.76820** | **131.2** | **89671.60** | **155732.35** | **238.2** | **G** |  |
| **366** | **37-44-48.70162** | **122-26-41.55910** | **488.5** | **77597.18** | **158961.18** | **595.59** | **T** |  |
| **367** | **37-44-47.91700** | **122-26-36.42910** | **493.9** | **77517.84** | **159373.23** | **600.95** | **L** |  |
| **368** | **37-44-25.89125** | **122-26-08.35836** | **390.8** | **75290.15** | **161628.23** | **497.85** | **L** |  |
| **369** | **37-44-29.67887** | **122-26-07.75801** | **376.9** | **75673.28** | **161676.40** | **484.023** | **L** | **=11638** |
| **370** | **37-44-24.41295** | **122-26-23.97690** | **357.3** | **75140.45** | **160373.65** | **464.37** | **T** |  |
| **371** | **37-44-29.60647** | **122-26-11.12342** | **482.7** | **75665.91** | **161406.07** | **589.76** | **T** |  |
| **372** | **37-44-10.54932** | **122-26-24.43313** | **134.6** | **73738.11** | **160337.15** | **241.7** | **G** |  |
| **373** | **37-44-05.51840** | **122-22-30.14040** | **-96.8** | **73237.75** | **179158.73** | **10.1** | **G** |  |
| **374** | **37-43-59.41665** | **122-22-19.05310** | **-92.0** | **72621.28** | **180049.92** | **15.0** | **G** |  |
| **375** | **37-45-19.19541** | **122-23-12.94180** | **-85.0** | **80687.80** | **175715.33** | **21.9** | **G** |  |
| **376** | **37-45-10.72857** | **122-23-12.26079** | **-88.9** | **79831.40** | **175770.60** | **18.0** | **G** |  |
| **377** | **37-45-22.62643** | **122-23-35.30327** | **-57.0** | **81033.71** | **173919.24** | **49.9** | **G** |  |

**378 37-47-11.61458 122-27-11.94881 143.1 92053.17 156520.78 250.16 T**

**379 37-47-12.28408 122-27-00.01127 168.5 92120.87 157479.10 275.48 T**

**380 37-46-52.07675 122-27-54.88680 70.1 90077.20 153073.50 177.160 L =11372**

**381 37-46-50.50137 122-28-06.12602 69.0 89918.01 152171.15 176.1 G**

**382 37-46-50.48274 122-28-30.74525 49.5 89916.59 150194.62 156.647 L =10317**

**383 37-46-46.00746 122-28-40.55746 48.2 89464.12 149406.73 155.4 G**

**384 37-46-46.08461 122-29-54.74580 164.2 89474.36 143450.51 271.6 G**

**385 37-46-37.54814 122-29-47.20571 102.8 88610.57 144055.44 210.2 G**

**386 37-46-40.25613 122-23-49.00732 -95.1 88885.50 172814.21 11.7 G Destroyed**

**387 37-46-35.66917 122-23-56.19270 -95.9 88421.20 172237.57 10.925 L =11788**

**388 37-44-07.76395 122-30-11.60094 -66.6 73460.59 142088.18 41.2 G**

**389 37-44-07.10596 122-30-19.01042 -82.9 73394.38 141492.92 24.84 T**

**390 37-43-17.76717 122-28-11.28255 133.6 68399.55 151752.61 240.996 L =11547**

**391 37-43-17.86779 122-27-55.12729 168.6 68409.49 153050.65 275.930 L =11552**

**392 37-42-51.03693 122-24-02.48541 12.9 65698.89 171744.31 120.01 T**

**393 37-42-47.41740 122-24-07.09847 -10.9 65332.58 171373.81 96.13 T**

**394 37-45-13.54733 122-23-55.37865 128.3 80114.41 172307.48 235.2 G**

**395 37-45-07.74986 122-23-53.91020 65.3 79528.04 172425.74 172.2 G**

**396 37-44-48.60052 122-25-08.27179 -37.2 77588.41 166454.06 69.75 T**

**397 37-44-53.78344 122-25-04.78629 -40.7 78112.76 166733.83 66.25 L**

**398 37-44-54.32505 122-24-41.82311 -68.0 78168.24 168578.19 38.894 L =11253**

**399 37-44-54.03164 122-24-56.74565 -59.7 78138.10 167379.64 47.28 L**

**400 37-43-11.68784 122-30-00.93986 -47.1 67787.91 142941.57 60.712 L =10523**

**401 37-43-08.31566 122-29-59.73344 -40.4 67446.76 143038.33 67.421 L =10502**

**402 37-43-07.42556 122-29-59.90770 -39.2 67356.73 143024.27 68.59 L**

**403 37-43-01.34881 122-29-52.61475 -54.5 66741.75 143609.95 53.26 L**

**404 37-42-34.24774 122-29-15.89515 -74.2 63999.09 146559.37 33.44 L**

**405 37-42-29.42279 122-29-10.20345 -69.3 63510.86 147016.57 38.40 L**

**406 37-43-48.70843 122-23-59.41187 -49.4 71532.60 171988.16 57.6 G**

**407 37-43-47.52194 122-23-51.27585 -50.0 71412.94 172641.86 57.0 G**

**408 37-42-32.95283 122-24-18.68289 -88.9 63869.01 170443.62 18.20 L**

**409 37-42-26.54010 122-24-20.82777 -90.8 63220.27 170271.57 16.33 T**

**410 37-43-42.91619 122-24-37.68577 11.6 70945.23 168913.54 118.65 L =11748**

**411 37-43-44.58426 122-24-31.19228 -5.2 71114.18 169435.16 101.75 T**

**412 37-43-40.68800 122-25-04.31948 139.3 70719.03 166773.87 246.4 G**

**413 37-43-38.69123 122-25-12.00484 166.3 70516.84 166156.48 273.44 G**

**414 37-42-58.69882 122-23-23.96881 30.4 66475.71 174838.84 137.52 G**

**415 37-42-53.06668 122-23-20.18322 42.6 65906.21 175143.40 149.65 G**

**416 37-43-03.27524 122-23-29.26399 17.7 66938.36 174413.07 124.78 G**

**417 37-43-35.00237 122-25-05.89298 147.9 70143.87 166647.64 255.03 G =17182**

**418 37-43-26.72795 122-25-02.49862 133.6 69306.99 166920.65 240.68 G**

**419 37-44-05.42221 122-24-40.07843 -80.1 73221.68 168720.37 26.88 T**

**420 37-44-10.57693 122-24-33.70735 -84.0 73743.30 169231.96 22.89 T**

**421 37-43-40.88961 122-24-25.10000 -15.9 70740.68 169924.78 91.02 T**

**422 37-43-32.53723 122-24-22.24385 -27.4 69895.93 170154.64 79.60 T**

**423 37-45-37.09732 122-25-08.79708 -65.5 82493.95 166410.25 41.34 T**

**424 37-45-37.58534 122-25-00.94347 -65.4 82543.53 167040.92 41.46 T**

**425 37-45-06.88571 122-25-30.02874 69.7 79437.47 164706.04 176.77 G**

**426 37-45-07.36856 122-25-13.97231 -17.9 79486.69 165995.59 88.97 G**

**427 37-43-27.43944 122-24-23.46636 -8.1 69380.23 170056.66 98.84 L =11754**

**428 37-43-25.43087 122-24-31.11256 -1.6 69176.79 169442.42 105.39 T**

**429 37-45-51.87943 122-23-15.12367 -95.1 83993.75 175537.89 11.67 T**

**430 37-45-53.42116 122-23-30.27030 -81.2 84148.92 174321.50 25.56 T**

**431 37-46-23.05412 122-23-38.25561 -95.2 87145.98 173678.47 11.56 G**

**432 37-46-14.98855 122-23-45.81916 -97.7 86329.77 173071.65 9.15 G**

**433 37-42-32.95107 122-26-51.53684 226.1 63865.73 158160.11 333.45 G**

**433 37-42-32.95107 122-26-51.53684 226.1 63865.73 158160.11 333.45 G**

**434 37-42-30.33113 122-26-59.30146 232.3 63600.72 157536.14 339.67 G**

**435 37-45-25.31867 122-28-36.35651 228.8 81302.15 149741.67 336.128 L =992268**

**436 37-46-38.47141 122-24-24.78185 -90.6 88703.50 169942.07 16.20 G**

**437 37-46-34.62074 122-24-19.93738 -91.9 88314.17 170331.20 14.95 G**

**438 37-44-37.55884 122-27-48.73709 350.6 76470.31 153565.25 457.93 G**

**439 37-45-29.35294 122-28-28.99017 300.4 81710.06 150333.36 407.72 G**

**440 37-48-19.58849 122-25-39.35054 -18.5 98929.69 163952.69 88.18 T**

**441 37-48-11.22934 122-25-35.32165 -28.7 98084.21 164276.25 78.07 T**

**442 37-47-22.19119 122-25-19.77136 86.7 93124.20 165525.78 193.58 G**

**443 37-47-15.46477 122-25-18.40230 68.8 92443.84 165635.89 175.75 G**

**444 37-46-21.19265 122-25-07.14389 -70.1 86954.35 166541.51 36.77 G**

**445 37-46-14.18563 122-25-03.50139 -78.9 86245.67 166834.22 27.96 G**

**446 37-44-14.90892 122-22-42.81863 -76.27 74186.83 178139.52 30.66 T**

**447 37-44-18.09823 122-22-48.99377 -83.73 74509.06 177643.23 23.20 T**

**448 37-43-36.22435 122-23-10.60433 -90.57 70272.19 175910.14 16.41 G**

**449 37-43-39.78573 122-23-17.58749 -85.82 70632.06 175348.86 21.17 G**

**450 37-46-11.87783 122-23-58.25569 -95.50 86014.55 172073.23 11.36 G**

**451 37-46-11.93918 122-24-14.34958 -92.75 86020.09 170780.97 14.12 G**

**452 37-42-42.48995 122-24-32.03123 -43.15 64833.21 169370.51 63.96 G**

**453 37-42-40.47551 122-24-24.90141 -56.24 64629.70 169943.55 50.86 G**

**454 37-43-57.51472 122-26-03.59389 87.07 72419.86 162011.43 194.17 L**

**455 37-43-53.91842 122-26-11.68327 108.86 72055.99 161361.61 215.97 T**

**456 37-43-54.34651 122-25-54.00347 8.56 72099.53 162781.94 115.66 L**

**457 37-43-51.07149 122-25-45.74667 26.82 71768.40 163445.34 133.90 G**

**458 37-47-58.43493 122-24-33.42555 -12.91 96791.73 169244.56 93.88 T**

**459 37-47-19.00917 122-28-57.05328 -41.79 92802.77 148083.52 65.39 G**

**460 37-47-09.36376 122-28-55.28527 17.20 91827.06 148225.11 124.38 G**

**461 37-47-10.43314 122-28-32.15326 27.25 91934.65 150082.14 134.39 G**

**462 37-47-45.62593 122-25-12.78309 59.84 95494.87 166086.01 166.69 T**

**463 37-47-46.70681 122-25-06.92287 96.46 95604.35 166556.35 203.30 T**

**464 37-42-38.30145 122-25-00.09382 -23.09 64408.64 167115.60 84.05 G**

**465 37-42-39.02204 122-25-07.60610 11.85 64481.32 166511.90 119.00 G**

**466 37-43-16.08554 122-24-55.37081 152.88 68230.70 167493.73 259.96 G**

**467 37-43-05.38106 122-24-51.57590 285.30 67148.04 167799.06 392.39 G**

**468 37-46-03.46432 122-24-03.71450 -91.67 85163.27 171635.36 15.20**

**469 37-45-49.31352 122-24-02.34813 -80.23 83731.94 171745.83 26.66**

**470 37-46-33.12498 122-25-26.92021 -39.16 88160.85 164953.29 67.73**

**471 37-47-26.37525 122-26-10.15918 114.03 93546.53 161480.87 220.92**

**472 37-48-32.07806 122-24-44.93398 -95.77 100194.45 168319.49 10.99**

**473 37-43-51.85356 122-28-43.22700 64.49 71848.12 149187.01 171.95**

**474 37-43-51.91569 122-28-52.81438 40.93 71854.65 148416.78 148.43**

**475 37-43-47.11688 122-27-35.49482 298.28 71367.87 154628.39 405.56**

**476 37-43-43.71412 122-27-35.75498 286.73 71023.68 154607.45 394.01**

**477 37-44-01.42161 122-29-37.91334 1.48 72817.65 144794.10 109.10**

**478 37-43-55.12856 122-29-38.04162 -28.81 72181.10 144783.49 78.83**

**479 37-43-46.11425 122-29-36.96090 -35.52 71269.24 144869.89 72.13**

**480 37-42-58.61790 122-25-49.38338 151.69 66462.56 163154.29 258.87**

**481 37-42-46.19159 122-25-55.97065 150.84 65205.51 162625.22 258.07**

**482 37-44-49.48097 122-28-10.31414 511.66 77676.57 151832.36 618.94**

**483 37-44-49.09501 122-28-18.34125 383.95 77637.67 151187.61 491.25**

**484 37-45-36.41626 122-23-46.26073 81.80 82428.06 173038.44 188.68**

**485 37-45-22.15708 122-25-56.80971 244.06 80981.72 162554.83 351.04**

**Adj#21 End**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Traverse Pts connecting non-intervisible HPND Points (i.e. 204101205 connects HPND 204 & 205)**

**204101205 90180.16 164560.04 113.58 \***

**281101282 90896.88 175426.78 11.71 \***

**343101344 76878.15 160376.71 559.18 \***

**361101361 91164.35 171408.31 30.75 \***

**378101379 92107.96 156935.00 265.67 \***

**390100391 68405.89 152390.55 263.33 \***

**392100393 65513.03 171582.22 97.03 \***

**394101395 79805.64 172327.19 212.92 \***

**394102395 79852.33 172387.08 218.41 \***

**394103395 79941.92 172386.59 224.52 \***

**397100396 77845.80 166590.13 64.73 \***

**402101403 66918.76 143390.21 57.69 \***

**402102403 66928.47 143292.32 59.70 \***

**408101409 63578.00 170457.38 15.25 \***

**411101421 71225.04 169767.76 93.55 \***

**412101413 70615.16 166437.41 254.54 \***

**417101418 69698.51 166795.21 265.21 \***

**419101420 73582.50 168937.56 26.99 \***

**421101422 70335.05 170006.77 88.03 \***

**423101424 82527.45 166717.86 47.38 \***

**425101426 79480.04 165274.17 120.93 \***

**429101430 83913.80 174832.50 21.70 \***

**431101432 86789.46 173303.73 9.40 \***

**440101441 98430.48 164218.51 76.54 \***

**450101451 86684.08 171400.77 14.63 \***

**466101467 67634.09 167761.32 334.17 \***

**\* Relative accuracy is based on trigonometric leveling; absolute accuracy indicated by HPND Ht Code**